

CLAIMS

What is claimed is:

1. A speed reducer comprising:

a housing;

an input shaft having at least one seal area with a plurality of bumps, the input shaft being positioned through an input aperture in the housing;

an input seal disposed between the seal area of the input shaft and the input aperture in the housing to seal an internal environment of the housing from an external environment of the housing;

an output shaft having at least one output seal area, having a plurality of bumps disposed thereon, the output shaft passing through an output aperture in the housing; and

an output seal disposed between the output aperture in the housing and the output seal area to seal the internal environment of the housing from the external environment of the housing.

2. A method for texturing a seal area of a shaft, the method comprising the steps of:

providing at least one die;

forming a plurality of indentations on an outer surface of the at least one die; and

pressing the die against a seal area of a shaft to form rounded bumps in the seal area.

3. The method as claimed in Claim 2, wherein the step of forming is performed by bombarding the at least one die with spherical objects.

4. The method as claimed in Claim 3, wherein said bombarding is shot peening.

5. The method as claimed in Claim 2, further comprising the step of supporting the shaft on a plurality of rollers before the raised texture die is pressed against the seal area.

6. The method as claimed in Claim 5, wherein the plurality of rollers counter force supplied from the die.

7. The method as claimed in Claim 5, wherein the at least one die includes two dies on opposite sides of the shaft, wherein the two dies are pressed against the seal area during the step of pressing.

8. The method as claimed in Claim 5, further comprising a roller positioned on an opposite side of the shaft from the at least one die, the roller serving to support the shaft during the step of pressing.

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9. A shaft comprising:
- a seal area; and
 - a plurality of bumps on the seal area.

10. The shaft as claimed in Claim 9, wherein a seal is positioned around the seal area.

11. The shaft as claimed in Claim 9, wherein the seal is positioned within an aperture in a housing to seal an internal area of the housing from an external area of the housing.

12. The shaft as claimed in Claim 9, further comprising a bearing journal for supporting a bearing.

13. The shaft as claimed in Claim 9, further comprising a gear journal for supporting a gear.

14. A wall and shaft assembly comprising:

- a wall having an aperture;
- a shaft having a seal area with a plurality of bumps, the shaft being positioned through the aperture; and

a seal disposed between the seal area of the shaft and the aperture to seal a first side of the wall from a second side of said wall.

15. The wall and shaft assembly as claimed in Claim 14, wherein the shaft further comprises a bearing journal for supporting a bearing.

16. The wall and shaft assembly as claimed in Claim 14, wherein the shaft further comprises a gear journal for supporting a gear.

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